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TITLE: COMPUTER BOX FILTER SYSTEM

BACKGROUND OF THE INVENTION

1. Field of the Invention:

This invention relates to air filters for computers and, more particularly, to air filters designated to cover an entire surface of a computer box to filter air drawn into the computer box through openings on the surface.

2. Description of the Related Art:

Located inside most computers is a fan that draws outside air into the computer box to cool the CPU and other components located inside. As the CPU's clock speed increases, a greater amount of air must be drawn into the computer box to cool the CPU. Unfortunately, when more air is drawn into the computer box, more dust and dirt accumulates inside.

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It is widely known that a large quantity of the air drawn into the computer box enters through switch and light openings and through floppy and CD-ROM disc drives openings all located on the front surface of the computer box. It is also widely known that the shape or profile of the front surface on the computer box varies with different computer manufacturers. The height and width of the computer box varies also.

What is needed is a filter cover that can be selectively used to substantially cover different shaped front surfaces and different sizes of computer boxes.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a filter cover that substantially covers the front surface of a computer box.

It is an object of the present invention to provide such a filter cover that can be used on computer boxes with holes formed on the sides of the computer box.

It is another object of the invention to provide such a filter cover that can be used with different size computer boxes.

These and other objects of the present invention are met by a computer box filter system for a computer box with air vent holes formed on the sides of the computer box. The system includes a vertically aligned frame assembly that selectively attaches over the vent holes located on the sides of the computer box. The frame assembly is a hollow, u-shaped structure designed to fit snuggly over the front section of the computer box. Disposed inside one side member of the frame assembly is a longitudinally aligned space in

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which a replaceable air filter is disposed. In the preferred embodiment, the side member is a channel structure with a longitudinally aligned opening formed on its inside surface. During installation, the side member is aligned on the computer box so that the longitudinally aligned opening is aligned and registered over the side openings on the side of the computer box. Formed on the front surface of the side member are a plurality of air vents with allow air located immediately in front of the computer box to pass through the frame assembly, pass through the filter, and then enter the side holes. In a second embodiment, the holes on the front surface of the frame assembly are replaced with holes formed on the outside surface of the frame assembly so that outside air may directly enter the computer box.

Attached to the frame assembly is an optional door cover that selectively moves between an open and closed position over the front face of the computer box. In one embodiment, air vent holes are formed on the front surface of the door cover that enables air to enter the space located immediately in front of the computer box. An optional second filter may be placed in the door.

In the preferred embodiment a pivoting means, such as a pair of hinges, is disposed between the frame assembly and the door cover enabling the door cover to be selectively opened and closed thereon. The frame assembly includes a forward extending abutment means which proper aligns the frame assembly on the computer box so that the edges of the door cover may press against the edges of the frame assembly during use thereby creating a seal.

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BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of the computer box filter system with a u-shaped frame member having air vent holes formed on its front surface.

Fig. 2 is a perspective view of the computer box filter system with a u-shaped frame member having air vent holes formed on its outside surface.

Fig. 3 is a left side elevational view of the filter cover attached to a computer box.

Fig. 4 is a right side elevational view of the filter cover attached to a computer box.

Fig. 5 is a top plan view of the filter cover attached to a computer box.

Fig. 6. is a partial, side elevational view of the filter cover.

DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

Shown in the accompanying Figs. 1-6, there in shown by a computer box filter system 10 for a computer box 90 that includes a frame assembly 15 that selectively attaches to a computer box 90. The filter system 10 also includes a u-shaped frame assembly 15 that selectively attached to the computer box 90. An optional door cover 45 pivotally attaches to the frame assembly 15 that, during use, selectively opens and closes over the front surface 91 of the computer box 90. During use, air may be drawn into the computer box 90 through various openings 96, 97, 98 formed on the front surface 91 or through a plurality of side openings 99 located on the side of the computer box 90. Located inside the frame assembly 15 is an air filter 60, through which air may be drawn through holes 92, 94 formed on its front and outside surfaces, respectively.

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The frame assembly 15 is transversely aligned and attached to the computer box 90 parallel and adjacent to the front surface 95. The frame assembly 15 may includes an abutment means which proper aligns the frame assembly 15 on the computer box 90 so that the edges of the door cover 45 pressed against the edges of the frame assembly 15 when the door cover 45 is closed. The abutment means also allows the position of the frame assembly 15 on the computer box 90 to be adjusted so that the door assembly 45 may close on different shapes or profiles of front surfaces 95. In the preferred embodiment, the abutment means is a forward extending lip member 24 located on the lower section of the frame assembly 15.

In addition to the lip member 24, the frame assembly 15 also includes an elongated top member 17, and two side members 20, 22. In the embodiment shown in Figs. 1-4, the top member 17, and two side members 20, 22, are elongated, rigid structures separately attached or integrally formed together to create an inverted, u-shaped structure that slides vertically and fits snuggly around the computer box 90. In the preferred embodiment, the side member 20 is hollow, channel structure in which a longitudinal space 21 is created for an elongated filter 60.The top member 17 or side member 22 may be hollow channel, or tube or a solid bar material. In the first embodiment, shown in Fig. 1, a plurality of air inlet holes 92 are formed on the front surface 20A of the side member 20 which are used to allow air located near the front surface 91 of the computer box 90 to enter the center space 21 of the side member 20. When the door cover 45 is used, air is able to pass through the door and into the side member 20 via the inlet holes 92. In a second

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embodiment shown in Fig. 2, the holes 92 are replaced with holes 94 formed on the outside surface 20Bof the side member 20 and is useful when a solid door cover 45 is attached to the computer box 90.

The lip member 24 is u-shaped structure, perpendicularly aligned and forward extending from the opposite lower ends of the two side members 20, 22. During use, the frame assembly 15 is placed over the computer box 90 so that the inside surface of the lip member 24 is pressed inward to make contact with the front, lower edge of the computer box 90. The lip member 24 acts to prevent the lower section of the frame assembly 15 from moving inward over the computer box 90, during use.

The door cover 45 is a deep, rectangular-shaped covering comprising a top panel 47, two parallel side panels 49, 51, and a front panel 52 all sufficient length and size so that the door cover 45 may cover the front surface 95 of the computer box 90 when closed there over. The width of the top panel 47 and two side panels 49, 51 are sufficiently wide to create a deep central space 55 inside the door assembly 45. The bottom of the door assembly 45 is open so that the lip member 24 discussed above may extend into the central space 55 when the door assembly 45 is closed. A plurality of optional air inlet openings 53 may also formed on the front panel 52 so that air may be drawn there through. Disposed inside the central space 55 is an option filter 59. Attached to the adjoining side member of the frame assembly 15 and the side panel 49 of the door assembly 45 are two pairs of hinges 70, 72, respectively. As shown in Figs. 2-3, the adjoining pairs of hinges 70, 72 are connected together via pins 74 that extend through bores 71, 73, respectively formed

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on hinges 70, 72, respectively.

As mentioned above, a main elongated air filter 60 is disposed inside the longitudinal space 21 located inside the side member 20. The filter 60 is sufficient in length and width to cover all of the inlet openings 92, or 94 formed on the side member 20 and the side air vents 99 on the side of the computer box 90. A cap 69 is attached to the side member 20 to hold the filter 60 inside the longitudinal space 21. In the preferred embodiment, the filter 60 is a HEPA filter capable of trapping particles .3 micron in diameter.

Today, computer boxes are manufactured in various rectangular sizes. The most common dimensions are 7 to 10 inches in width and 12 to 24 inches in height. The front surface of the computer box may be flat or extend forward ½ to 1-1/4 inches.

During use, the frame assembly 15 is placed around the computer box 90 adjacent to the front surface 91. The frame assembly 15 is positioned on the computer box 90 so that the inside surface of the lip member 24 is pressed tightly against the lower front edge of the computer box 90. The door assembly 45 may then be selectively opened or closed on the computer box 90.

In compliance with the statute the invention described herein has been described in language more or less specific as to structural features. It should be understood, however, that the invention is not limited to the specific features shown, since the means and construction shown comprise only the preferred embodiments for putting the invention into effect. The invention is therefore claimed in any of its forms or modifications within the

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legitimate and valid scope of the amended claims, appropriately interpreted in accordance with the doctrine of equivalents.

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